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REMARKS

This is intended as a full and complete response to the Office Action dated October 7, 2003. Claims 1-43 are pending in the application and stand rejected. Applicants have amended the claims to correct matters of form and to more clearly recite aspects of the invention. Applicants have cancelled claims 32 and 37-38. Applicants have also added new claims 44-46 to recite additional aspects of the invention. Please enter these amendments and reconsider the claims pending in the application for reasons discussed below.

Claims 1-43 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over *Iwasaki, et al.* ((U.S. Patent No. 5,429,991), *Kusumoto, et al.* ((U.S. Patent No. 4,849,260), or *Emesh* (U.S. Patent No. 5,407,698). Specifically, the Examiner asserts that *Iwasaki* discloses a method of depositing a tungsten layer on an intermediate layer previously formed on a substrate; *Kusumoto* discloses a method of depositing metal on a substrate wherein a second metallic film is formed over a metallic film previously deposited on the substrate in via holes; and *Emesh* discloses a method of depositing tungsten by depositing a first layer of tungsten followed by a second layer of tungsten with a different thickness. Generally, the Examiner asserts that it would have been obvious to one skilled in the relevant art to improve upon each of these references by varying film thickness.

The Applicant respectfully traverses the rejection. The cited references teach at best two layers of tungsten. Each of the references is limited in scope to a first tungsten layer and a second tungsten layer. All claims of the present invention recite a composite having tungsten nucleation layers and tungsten bulk layers, thereby claiming an invention comprising at least four tungsten layers. While the references cited disclose a second layer comprising a film thickness different than that of the first layer, they contain no suggestion, singularly or in combination, to additional tungsten layers as recited in the pending claims.

Therefore, Applicants respectfully request withdrawal of the rejections and allowance of the claims.

Furthermore, claim 1 recites that each tungsten layer has a thickness less than 300 Å. The Examiner states that it would have been obvious to one skilled in the relevant art to vary film thickness to achieve desired final characteristics, but none of the cited references teach a tungsten film thickness less than 300 Å. Contrary to the assertion by the Examiner, it is not obvious to select a thickness that is not taught by the references. Withdrawal of the rejection of claim 1, and claims dependent thereon, is respectfully requested.

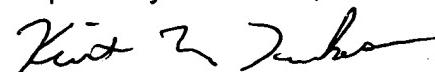
With respect to claim 16, the Examiner incorrectly asserts that the distinguishing feature of the invention is merely an alternating introduction of the reactant gases. This conclusion again misunderstands the claims of the invention wherein at least two ALD tungsten layers are deposited along with at least two tungsten layers that are deposited by decomposing the precursor. Withdrawal of the rejection of claim 16, and claims dependent thereon, is respectfully requested.

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as recited in the pending claims.

The secondary references made of record are noted. However, it is believed that the secondary references are no more pertinent to the Applicant's disclosure than the primary references cited in the office action. Therefore, Applicant believes that a detailed discussion of the secondary references is not necessary for a full and complete response to this office action.

Having addressed all issues set out in the office action, Applicant respectfully submits that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



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